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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/422,775	10/21/1999	CHARLES ALBIN HANSON	04MV1089	5982
34225	7590	08/30/2004	EXAMINER	
UNISYS CORP. 25725 JERONIMO ROAD, MS400 MISSION VIEJO, CA 92691			VO, LILIAN	
			ART UNIT	PAPER NUMBER
			2127	

DATE MAILED: 08/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/422,775

Applicant(s)

HANSON ET AL.

Examiner

Lilian Vo

Art Unit

2127

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 - 19, 25 - 29 and 34 - 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 19, 25 - 29 and 34 - 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. In view of the appeal brief filed on 5/21/04, PROSECUTION IS HEREBY REOPENED.

New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. Claims 1 – 19, 25 – 29 and 34 – 38 are pending. Claims 20 – 24, 30 – 33 and 39 – 43 have been withdrawn from consideration as being nonelected claims. A complete reply to this action must include cancellation of nonelected claims or take other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 11 – 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. **Claim 11** recites the limitation "said format" in page 76, line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 3, 25, 26, 28, 29, and 34 - 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Pat. Application Publication 2002/0026443, hereinafter Chang).

9. Regarding **claims 1, 25, 29 and 34**, Chang discloses a method of accessing and operating upon heterogeneous data at a plurality of nodes (abstract) comprising the steps of:

(1) propounding a request containing a data source object name wherein the heterogeneous data is treated as a single data source object (page 1, paragraph 14: performing federated searches of multiple heterogeneous storage facilities, each having diverse data types and for managing results of these searches. Page 7, paragraphs 99 – 103: FederatedCollection.

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Page 23, paragraphs 452 – 453: users' federated queries can be submitted for processing with execute or evaluate method in the federated datastore. Page 6, paragraphs 95 – 96: query evaluating for implicit or explicit collection of objects. Page 2, paragraphs 19 - 21 and 24 – 25: users can query against heterogeneous datastores and get back the results in a consistent, uniform format), said request further containing at least one method to be performed on the data source object and at least a second method to be performed on the results produced by performance of the first method (Page 2, paragraphs 24 – 26: The federated query object can coordinate query processing functions such as translation, filtering, merging and data conversion for multiple heterogeneous datastores in a single query. Page 7, paragraphs 97 – 98, page 8, paragraphs 113 – 114 : Results 6 supports sorting and bi-directional iterators, and is queryable. Page 23, paragraph 454 – page 24, paragraph 461. See also figs. 1, 6 and 10);

(2) determining whether the data source object is distributed across a plurality of nodes (abstract, page 2, paragraph 20: users can query against heterogeneous datastores and get back the results in a consistent, uniform format. Page 36, claim 1).

Regarding the step of making a determination as to whether said second method should be performed on said results at each respective node or should be performed at the user site after said results are transmitted from each node back to the user site, Chang discloses that the results can be sorted (sorting method) at each datastore before returning to the QueryableCollection 5 (page 8, paragraph 113 – 114: Results 6 at each datastore supports sorting and bi-directional iterators, and is queryable). Chang also disclose that the user can perform additional methods on the results (page 24, paragraph 462 – 463: user can create a federated iterator 38 on this collection to iterate over the collection members to process the results. Page 7, paragraph 106). Therefore, it would have been obvious for one of an ordinary skill in the art, at the time the

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invention was made, to recognize that Chang's system is capable of performing the step of determining to whether the additional operations should be performed on the results at each respective node (at each datastore) or should be performed at the user site after the results are transmitted from each node back to the user site (user can create a federated iterator on the end-result federated collection).

10. Regarding **claims 2, 26 and 35**, Chang discloses that if it is determined that the data source object is distributed, and said second method should be performed at the respective nodes, the request is broken into a plurality of new requests, each of said new requests including code representing said first and second methods and having a format appropriate to one of the respective nodes where the data source object resides (abstract: federated query object translates a generic query into the appropriate queries for each datastore from multiple heterogeneous datastores. Page 8, paragraph 113 – 114: Results 6 at each datastore supports sorting and bi-directional iterators, and is *queryable*. Page 7, paragraphs 97 – 98, 103 and 104: *queryable* collection is a subclass of both query evaluator and sequential collection classes, which it can be used to store the result or scope of a query, which in turn, can be queried further. Each results 6 contains the results of a subquery of the federated query submitted to a specific native datastore. Page 23, paragraph 452 – page 24, paragraph 458: query translation translates the query canonical form into several native queries that corresponds to each native datastore. Each native query is submitted to the corresponding native datastore for execution). In other words, subquery of the federated query is submitted to a specific native datastore (respective node) with the appropriate format for processing such as searching and sorting.

11. Regarding **claim 3**, Chang discloses the steps of:

transmitting said new requests to said nodes (Page 7, paragraphs 104: Each results 6 contains the results of a subquery of the federated query submitted to a specific native datastore. Page 23, paragraph 452 – page 24, paragraph 458: query translation translates the query canonical form into several native queries that corresponds to each native datastore. Each native query is submitted to the corresponding native datastore for execution);

executing the first method concurrently on the data source object at the corresponding nodes (fig. 10);

temporarily storing the results of execution of the first method (page 8, paragraph 114: results supports sorting and bi-directional iterators and is queryable. By this, it inherently temporary saving the results before it can be sorted and returned or be queried further); and

executing the second method on said results, said step of executing being performed at each of said nodes where the data source object resides (page 8, paragraph 113 –114: Results 6 at each datastore supports sorting and bi-directional iterators, and is queryable). It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to recognize that Chang's system is capable of performing the step of executing the sorting method on the results at each datastore before the return or to be queried further.

12. Regarding **claims 28, 36 and 37**, Chang discloses the results of execution of said second method are automatically returned to the user site (fig. 1, page 8, paragraph 114: results 6 is a subclass of queryableCollection 5 which supports sorting and bi-directional iterators, and is queryable) and automatically merged by said first agent process (fig. 9 and page 24, paragraphs 458 - 461: federated datastore 37, each at client and server side can merges the results from



several native datastores into a federated collection), and a third method is then automatically executed on the merged results by a said first agent process (page 24, paragraph 462: the user can create a federated iterator on the end result to iterate over the collection members to process the results).

13. Claims 4, 5, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Pat. Application Publication 2002/0026443, hereinafter Chang) as applied to claim 1 above, in view of Crandall et al. (US 6,321,228, hereinafter Crandall).

14. Regarding **claim 4**, Chang did not clearly disclose the additional limitation as claimed. Nevertheless, Crandall discloses a first agent process at the user site performs the step of making a determination as to whether the second method should be performed at each respective node (col. 6, lines 20 – 29: the entire result set is sorted according to the user's sorting choice. Fig. 8, 850). It would have been obvious for one of ordinary skill in the art, to recognize that sorting the result set by the user's preference is specified at the user site in which the agent process at the user site performs the determination base on such parameter. It would have been obvious for one of ordinary skill in the art, at the time the invention was made, to incorporate Crandall's feature with Chang for performance the operation as specified by the user.

15. Regarding **claim 5**, Chang discloses that the data source object is distributed (abstract: federated query object translates a generic query into the appropriate queries for each datastore from multiple heterogeneous datastores) and the first agent process consults a data source descriptor file containing a subset of data contained in a first repository of metadata (fig. 9 and

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page 22, paragraph 417: federated datastore 37, each at client and server side can coordinates query evaluation, data-access, and transaction processing of the participating datastores with each datastore preserves the right to maintain its “personality” such as its own query language, data-model or schema).

16. Regarding **claim 9**, Chang discloses the data source descriptor file is created from the repository at run-time (page 12, paragraph 169: dynamic data object base protocol allows a client to create an object dynamic and get its persistent data in and out of the datastore, independent datastore’s type.)

17. Regarding **claim 10**, Chang discloses that a first messenger process cooperates with the first agent process to transmit each new request to its respective node (page 23, paragraph 454 – page 24, paragraph 458: federated query processor module translates query into several native queries and submits to the corresponding native datastores for execution).

18. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Pat. Application Publication 2002/0026443, hereinafter Chang) as applied to claim 1 above, in view of Crandall et al. (US 6,321,228, hereinafter Crandall), and further in view of Noble et al. (US 5,634,053, hereinafter Noble).

19. Regarding **claim 6**, Chang and Crandall did not clearly disclose the additional limitation as claimed. Nevertheless, Noble discloses that remote agent process automatically executes the first method, automatically stores the results produced by executing the method, and

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automatically executes the second method on the results (col. 9, lines 19 – 24, 55 – col. 10, lines 41: in the autonomous mode, local information managers (LIMs) coordinates its own local execution plan such as simplifying the local query and minimizing the amount of data transmitted between LIMs as shown in figs. 3 and 4). It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to incorporate Noble's teaching with the combination of Chang and Crandall to have each of local information managers perform execution automatically to enhance parallelism (Noble: col. 9, lines 19 – 24 and 33 – 34).

20. Regarding **claim 7**, Chang discloses the results of execution of said second method are automatically returned to the user site (fig. 1, page 8, paragraph 114: results 6 is a subclass of queryableCollection 5 which supports sorting and bi-directional iterators, and is queryable) and automatically merged by said first agent process (fig. 9 and page 24, paragraphs 458 - 461: federated datastore 37, each at client and server side can merges the results from several native datastores into a federated collection), and a third method is then automatically executed on the merged results by a said first agent process (page 24, paragraph 462: the user can create a federated iterator on the end result to iterate over the collection members to process the results).

21. Claims 8 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Pat. Application Publication 2002/0026443, hereinafter Chang) as applied to claim 1 above, in view of Crandall et al. (US 6,321,228, hereinafter Crandall), in view of Noble et al. (US 5,634,053, hereinafter Noble) and further in view of Yong et al. (U.S Pat. 5,749,079, hereinafter Yong).

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22. Regarding **claims 8 and 38**, Chang discloses the first and second methods as a search of the data object (abstract: searching multiple heterogeneous datastores with heterogeneous data types by employing an object oriented data model), a sort of the results of the search (page 8, paragraph 114: results 6 is a subclass of queryablecollection 5 which supports sorting and bi-directional iterators and is queryable). Chang, Crandall and Noble did not disclose a method of emailing the merged results of the search. Nevertheless, Yong discloses the feature of emailing the query result to the user (col. 32, lines 58- 60). It would have been obvious for one of an ordinary skill in the art, at the time the invention was made to incorporate Yong's feature to the combination system of Chang, Crandall and Noble to allow user who has no on-line access to his application database is still able to make his query using the email system (Yong: col. 32, lines 62 – 65).

23. Claims 11 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Pat. Application Publication 2002/0026443, hereinafter Chang) as applied to claim 1 above, in view of Crandall et al. (US 6,321,228, hereinafter Crandall), and further in view of Schmid et al. (US 6,438,578, hereinafter Schmid).

24. Regarding **claims 11 and 12**, Chang discloses that queries and/or subqueries can be in the form of SQL (page 2, paragraph 25), a form of a script, which is also considered well known in the art as a scripting language. Chang and Crandall did not disclose the requests are in the form of a Java script. Nevertheless, Schmid discloses that the format and request instructions comprise a java script that can execute within the browsers (col. 12, lines 26 - 30). It would have been obvious for one ordinary skill in the art, at the time the invention was made to implement

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the combination of Chang and Crandall's requests using a Java script to enable them to run on a variety of platform.

25. Regarding **claim 13**, Chang discloses that each of the nodes has associated therewith a respective database (page 5, paragraph 77 and fig. 6: query result is a collection of objects containing dynamic data objects (DDOs) inside, each has attributes, with type, value and properties which may be link to another DDO in the form of tree structure such as object oriented view of relational databases), and a respective agent process (page 2, paragraph 25: federated query object can have other federated queries object as subqueries, in which each federated query object can coordinate query processing functions such as translation filter, merging, and data conversion for multiple heterogeneous datastores in a single query. Queries can be in the form of SQL scripting language).

26. Regarding **claim 14**, Chang discloses that each of the databases is different from the remaining respective databases (abstract: searching multiple heterogeneous datastores).

27. Regarding **claim 15**, Chang discloses a system with different multiple databases (abstract: multiple heterogeneous datastores). Chang and Crandall did not clearly disclose the databases are selected from the following group: Oracle database, NT database and SQL Server. Nevertheless, Schmid discloses as system with a Windows NT Web server provides local requested content (col. 10, lines 26 – 44). It would have been obvious for one ordinary skill in the art, at the time the invention was made to implement the combination of Chang and

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Crandall's system with Windows NT Web server database for storing data to fulfill users' requests.

28. Regarding **claim 16**, Chang discloses that each respective agent process accesses metadata located at the respective node in the course of executing the respective new script at that node (page 2, paragraph 25: federated query object can have other federated queries object as subqueries, in which each federated query object can coordinate query processing functions such as translation filter, merging, and data conversion for multiple heterogeneous datastores in a single query. Queries can be in the form of SQL scripting language. Page 5, paragraph 77 and fig. 6: query result is a collection of objects containing dynamic data objects (DDOs) inside, each has attributes, with type, value and properties which may be link to another DDO in the form of tree structure such as object oriented view of relational databases).

29. Regarding **claim 17**, Chang discloses a data source descriptor file is created from the metadata at each respective node for use by the respective agent process (Fig. 8, page 2, paragraph 21, page 7, paragraphs 100 - 104: a federated collection containing results objects of federated query which may come from several heterogeneous datastores. Page 22, paragraph 417: federated datastore coordinates query evaluation, data access and transaction processing of the participating datastores, with each datastore preserves the right to maintain its personality such as its own query language, data-model or schema, method of interaction).

30. Regarding **claim 18**, Chang discloses the metadata comprises a collection of data source objects which reflect treatment of data stored in each respective database as a single object

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(abstract, Fig. 8, page 2, paragraph 21, page 7, paragraphs 100 - 104: a federated collection containing results objects of federated query which may come from several heterogeneous datastores. Page 22, paragraph 417: federated datastore coordinates query evaluation, data access and transaction processing of the participating datastores, with each datastore preserves the right to maintain its personality such as its own query language, data-model or schema, method of interaction) and wherein each of the data source objects is broken down into successive class levels (abstract: federated collection object represents results from a federated query in a hierarchy that maintains sub-grouping information from each datastore to allow accessing of results by datastore).

31. Regarding **claim 19**, Chang discloses the class levels include a class comprising a System Node (federated collection object), System Server (datastore), Data Source Object (result object), Field Desc (attributes and type) and System Script (query language), (Figs. 1 and 8, Page 22, paragraph 417: federated datastore coordinates query evaluation, data access and transaction processing of the participating datastores, with each datastore preserves the right to maintain its personality such as its own query language, data-model or schema, method of interaction. Page 5, paragraph 77 and fig. 6: query result is a collection of objects containing dynamic data objects (DDOs) inside, each has attributes, with type, value and properties which may be link to another DDO in the form of tree structure such as object oriented view of relational databases).

32. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US Pat. Application Publication 2002/0026443, hereinafter Chang) as applied to claim 25 above, in view of Noble et al. (US 5,634,053, hereinafter Noble).

33. Regarding **claim 27**, Chang did not clearly disclose the additional limitation as claimed. Nevertheless, Noble discloses that remote agent process automatically executes the first method, automatically stores the results produced by executing the method, and automatically executes the second method on the results (col. 9, lines 19 – 24, 55 – col. 10, lines 41: in the autonomous mode, local information managers (LIMs) coordinates its own local execution plan such as simplifying the local query and minimizing the amount of data transmitted between LIMs as shown in figs. 3 and 4). It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to incorporate Noble's teaching with Chang to have each of local information managers perform execution automatically to enhance parallelism (Noble: col. 9, lines 19 – 24 and 33 – 34).

### ***Conclusion***

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Thomson (US 5,634,051) disclosed an information storage, searching and retrieval system which includes multiple query generation processes, a search processes, and a presentation of search results that is sorted by category or type and that may be customized based on the professional discipline.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 571-272-3774. The examiner can normally be reached on Monday - Thursday, 7:30am - 5pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3752. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Lilian Vo  
Examiner  
Art Unit 2127

lv  
August 25, 2004

  
**MENG-AL T. AN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2100**